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ON THE PREPARATION OF SUPPOSITORIES.

By William G. Ewing.

(An Inaugural Essay.)

I have read most of the articles that have appeared in the *Amer. Journ. Pharmacy* for several years, upon the subject of suppositories; and have gained many valuable suggestions from Messrs. J. B. Moore, Chas. L. Eberle and others; but I have fallen upon a process not alluded to by any of them, that greatly facilitates this tedious, and sometimes very difficult, and troublesome class of prescriptions. The plan I have adopted is as follows:

First, procure a large, coarse tin grater—such as may be had of any tinner—and with it grate the cacao butter into a coarse powder, pass through sieve No. 20, and put it into a wide mouth bottle ready for use; next, take some pure white wax, grate, sift, bottle, and set it aside in the same manner as above. The fragments that will not pass through the sieve can be melted, and grated again after cooling. With these two substances on hand, the prescriptionist is prepared for any formula in the suppository line.

The management of the melting point of suppositories has been a matter of great difficulty, annoyance and delay, varying as it does with the seasons; but with this (grated material) we have a ready means of regulating it at will; for if the mass should be too hard—as in winter—the addition of a little olive oil will be found advantageous; or, if too soft—as in summer—the addition of the grated wax will bring it to the right consistence. In addition to the above ready means of controlling the melting point, it has the advantage of being

much more easily manipulated. For instance, take the following suppository from the U. S. Dispensatory, 13th edition, viz. :

℞.	Tannic Acid	grs. 36.
	Benzoated Lard	" 44.
	White Wax	" 10.
	Oil of Theobroma	" 90.

The directions are to melt the wax and oil of theobroma with a gentle heat, and add the tannic acid and benzoated lard, previously rubbed together in a mortar, and mix all the ingredients thoroughly; pour the mixture, while it is still fluid, into suitable moulds of the capacity of 15 grains, or the fluid mixture may be allowed to cool, and then divided into 12 equal parts, each of which shall be made into a conical, or other convenient form for a suppository.

The above formula is easily expressed, but not so easily complied with in all cases, owing to the variable nature of the oil of theobroma, and also to the temperature of the season; but, accepting it as it stands, the advantage of the grated wax and cacao butter is very perceptible, since instead of melting one portion together, and rubbing the other portion in a mortar as prescribed, the whole may be at once mixed and rubbed together in a mortar, forming a plastic mass as easily rolled into lengths and divided as an ordinary pill mass; and each piece formed by the fingers into a conical shape, or, if desirable, pressed into suitable moulds previously dusted with lycopodium, as suggested by Mr. J. B. Moore. The following is a copy of a far more difficult prescription, that was brought to me by a patient to be filled one very warm night.

℞.	Carbolic Acid	grs. xxx.
	Cacao Butter	ʒ iss.

Mix and make suppositories No. 10.

Here the prescriptionist is in a dilemma. If the carbolic acid and cacao butter are melted together they will not solidify on cooling; if wax be melted with the mixture, considerable time is occupied in adjusting the proportions, as it is necessary to test it by allowing portions to cool from time to time, and adding wax by degrees until the proper consistence is attained; meanwhile the carbolic acid is evaporating, and the efficacy of the suppositories being impaired. Having the grated materials at hand, and no other recourse but to add a sufficiency of wax, it was immediately and easily done by rubbing it

in until the proper consistence was attained, the amount of wax required being 70 grains; the prescription was much more quickly dispensed than by any of the usual methods, and as there was no heat employed in the process there could have been no evaporation of the carbolic acid. In the above case, the grated wax and carbolic acid were first well rubbed together, and the cacao butter added last.

As no allowance was made for the addition of wax, the size of each suppository was slightly increased, (though not materially) and, as each contained the exact proportion of its active ingredient, the design of the prescription was executed. The weight of each suppository might have been left unchanged by omitting enough cacao butter to balance the wax that was added.

It is needless to repeat examples, though many difficult ones might be given from actual experience; it is sufficient to state a few general principles.

When dry substances are prescribed, they should be reduced to fine powders (if not already so) then thoroughly incorporated with the grated cacao butter, and rubbed in a mortar until the mixture becomes a plastic mass easily rolled into lengths, divided and formed into suppositories. Should moist substances, such as extracts or any articles not dry, be prescribed, they may be rubbed first with about an equal bulk of the grated cacao butter, and afterwards readily combined with the remaining ingredients.

As a general rule, all substances used in medicating suppositories must be either in the state of a fine powder, or a uniform paste; the prescriptionist must decide upon the more easily attainable state.

The advantages of using the cacao butter in the grated state are numerous. It furnishes the means of easy manipulation, of readily adjusting the melting point, of avoiding the delay of melting and cooling, and the use of ice which is not always procurable, of thorough and perfect incorporation of its ingredients, of exactness with which the mass may be divided; besides the satisfaction it gives the prescriptionist of *knowing* that no separation nor subsidence of any of its ingredients can possibly take place, which certainly cannot be felt when the substance is *melted* and moulded.

ON THE PRESERVATION OF PHARMACEUTICAL APPARATUS FROM BREAKAGE BY CHANGE OF TEMPERATURE.

By Robert Simpson.

(From the Author's Inaugural Essay.)

One of the most serious losses to which the apothecary is subject, is that caused by the constant breakage of glassware. Almost everything we handle is made of glass, and some of it is constantly being broken. The causes of this constant breakage are mainly two; carelessness and disobedience of the laws of nature. In regard to the first cause, little need here be said; the remedy is with each apothecary himself, and it rests with him whether to apply it or not. In regard to the breakage of vessels caused by disobedience of the laws of nature, I desire to present a few thoughts, confining myself mainly to the consideration of accidents caused by disobedience of the law so often disregarded by us. I refer to that which teaches us that, glass being a very bad conductor of heat, vessels made of it will generally break, if suddenly heated on the inside, by pouring in of hot liquids while the glass is cold, or suddenly cooled by the pouring in of cold liquids while the glass is hot. We all know that as the hot liquid strikes the bottom of the vessel, the layer of glass in contact with the hot liquid is expanded, and owing to the inferior conducting power of the glass, the lower layers do not become heated in time to expand with the upper. The unequal expansion causes such a strain upon the cooler layers of the glass that they are broken. When cold liquids are poured into hot vessels, the inner layers are suddenly contracted, and the same result ensues as in the first instance. This law is known to all apothecaries and yet is constantly disregarded. In many of our operations we desire to know the exact measurement of hot liquids; we do not like to use metallic measures, and have not the same confidence in their accuracy that we have in the accuracy of measures of glass. Under these circumstances we must either wait for the liquid to cool or risk the breakage of the glass measure.

The well known fact, that well made vessels of thin glass are less liable than others to breakage from change of temperature, is frequently taken advantage of for some operations, but for general practice is impracticable. It is between two and three years since a process was adopted by me, by means of which I have been enabled

to avoid all loss of glassware from sudden change of temperature. During that time I have always been in the habit of making the solution of citrate of magnesia with hot water, and filtering it at once into glass vessels. I have always strained hot syrups into glass bottles, and have been in the habit of measuring hot liquids in ordinary glass graduate measures. Fruit syrups made in the summer season, I have always bottled while hot in ordinary bottles, and hot liquids of every kind I have handled in the same manner. In all this time I have never broken or had broken in my store a single bottle or vessel from sudden change of temperature.

One day a man who, from his conversation, I supposed to be an old sailor, stopped in the store. After making some slight purchase, he opened a wandering conversation with me on various subjects, and finally, after talking about spiritualism, magic, etc., he began to speak on matters which, if not scientific, are at least curious. Among other matters he mentioned the fact that, in making hot punch, he had observed that if the hot liquid be poured into a cold glass, under ordinary circumstances, the glass will generally break; but if a spoon be placed in the glass, there will be no breakage. I had nothing to say at the time, but it struck me that there was a thought which might be of service to the profession. I have since ascertained that my maritime friend is not the only one acquainted with the punch making process. It has been known to certain persons for many years—was known seventy years ago to my grandfather. It occurred to me that there is nothing in the peculiar form of the spoon and glass to prevent the breakage, and that, if the statement be true of the spoon and tumbler, the principle will also apply to a rod and bottle. I tried a few simple experiments, which satisfied me that the principle is of use, and have employed it in practice ever since. I have on hand a number of metallic rods, and when I have occasion to pour a hot liquid into a cold bottle, jar or measure, I simply place a metallic rod in the vessel, and slowly pour the hot liquid down the rod. With proper manipulation and the adoption of this process, I am satisfied that no apothecary need ever lose a single bottle by breakage caused by change of temperature.

The rule may be applied both ways. After a hot liquid has been placed in a vessel protected by the rod, the liquid may be poured out, the rod replaced, the vessel washed at once with cold water and used for any other purpose. Fluid extracts while evaporating may be at

once measured in glass graduates and returned to the water bath, and the graduate may be washed and used for any other purpose immediately. This much I know, but in regard to the explanation my mind is not by any means so clear.

On first applying the principle, the idea presented itself that the result was due to the conduction of heat by the metallic rod. It would have been easy to account for the circumstances in this way, were it not for two facts. First, the rod when held in the hand at a distance from the bottle, does not appear to become heated; and secondly, the liquid in the bottle continues hot. These circumstances led me to look for some other cause, and induced me to engage in a series of experiments, with a view of ascertaining the cause of the phenomenon.

[The author proves by careful experiments that neither heat nor electricity is conducted off through the metallic rod, and then proceeds:]

Experiment XIII. Placed ten cold bottles in a row and filled them with boiling water, using the *same rod* every time. I noticed that the sixth bottle broke, and after that two more of the four. On removing the rod from the last bottle, I observed that where it had been in the bottles it had become very hot. This led me to think of

Experiment XIV. Took three good, wide-mouthed, pint bottles, cooled them by immersion in cold water (40° F.) for twenty minutes. Placed on the bottom of a tinned iron vessel a rod of iron, filled the vessels with water, caused it to boil with the rod in it, allowed it to boil for ten minutes, so as to have the rod and water of the same temperature; took out the rod and placed it in one of the bottles, and poured boiling water down the rod into the bottle; proceeded in the same way with the other bottles. Two of the three bottles were broken. These experiments showed me, that after a rod has absorbed a certain amount of heat it is of little or no avail.

Experiment XV. Filled a cold bottle with boiling water, using a rod of iron; cooled the bottle, placed the rod in water and boiled it. After one hour placed the hot rod in the same bottle and poured in boiling water as before. The bottle was broken. These experiments led me to the conclusion that the effect is due to the cooling effect upon the first portions of the water caused by the *absorption of heat* from the water by the rod. These first portions of the water being considerably cooled by their passages down the cold surface of the

rod, are still hot enough to warm the surface of the glass, but not hot enough to cause it to crack. They form a layer of moderately warm liquid on the surface of the glass. The next portions of water coming down are somewhat warmer, and are followed, toward the end of the pouring, by liquid which is quite hot; but the bottle has been gradually warmed by the first portions of the liquid, so that it will not now crack when the hot liquid is poured in, as there is no very sudden change of temperature. This idea suggested to my mind

Experiment XVI. Procured ten common pickle bottles made of green glass, flat sided and tapering the entire length, so that the bottoms were 4½ inches wide, while the tops were only 1¼ inches, the width of the mouth. Into each of these bottles I placed a rod in such manner that the lower end rested on one end of the bottom, and the upper pointed diagonally upward. The bottles were cooled and boiling water was poured in. Owing to the position of the rods, most of the water fell off them soon after entering the bottles, and had not time to be cooled by passing all the way down on the cold metal. The water fell on the bottoms at a point two inches from the ends of the rods. Out of the ten bottles, eight were broken.

Experiment XVII. Took a good, wide mouthed, one pint bottle, cooled the bottle and placed in it a rod of brass, poured in boiling water until full, and immediately plunged in a thermometer. The mercury in the thermometer rose only to 181°, showing that 31° of heat had been lost by the entire mass of liquid in passing down the rod. This circumstance suggested

Experiment XVIII. Procured a good, wide mouthed bottle, of clear white glass. The bottle was 2¾ inches in diameter at the bottom, and 6¼ inches high to the shoulder. Placed in it a thermometer and brought the bottle to a uniform temperature by filling with water at 50° F. and placing it in a bucket of the same water. Allowed the thermometer to remain in the bottle, placed in the same bucket a rod of brass and allowed all to remain for twenty minutes; so that bottle, rod and thermometer tube might be of the same temperature. Heated water to boiling in a vessel having a good spout. Before placing the bottle in the bucket, I had pasted on it a strip of paper, graduated to show the points by which it was filled by two, four, six, eight, ten, twelve, sixteen and twenty fluid ounces. After removing the bottle from the cold water and emptying it, I placed in it the brass rod and thermometer. Poured boiling water down the rod to the first mark, re-

placed the water on the fire and observed the thermometer; filled the bottle to the next mark and observed the thermometer again. Continued in the same manner until the vessel was full, replacing the water on the fire each time so as to keep it constantly boiling. The results were as follows:

At the two ounce point, the mercury stood at 130°, showing that the first two fluid ounces of the water had lost 82 degrees of heat in passing down the rod; at the four ounce point the mercury stood at 160°, showing a loss of 52°; at the six ounce point it stood at 168°, at the eight ounce point it stood at 170°, at the ten, twelve, sixteen and twenty ounce points it stood at 172°, 175°, 179° and 181° respectively; showing losses of 42°, 40°, 37°, 33° and 31°.

These experiments *almost* satisfy me that I am right in the supposition before expressed, that the effect is due simply to the absorption of heat from the liquid by the rod. Whether I am correct or not in the explanation can make no difference in regard to the utility of the process. Of course the success of the process depends almost entirely upon proper manipulation. To insure success, I recommend that the rod be placed on the centre of the bottom of the vessel, that it be held perpendicularly, so as not to touch any part of the side or lip, that it be of such length as to project six inches above the top of the bottle, that the lip of the pouring vessel be placed against the rod, and that the liquid be poured slowly so that none of it may leave the rod until it reaches the bottom. Rods of about the thickness of $\frac{1}{4}$ of an inch will be found most convenient. When a funnel is used, the rod cannot be placed perpendicularly, but may be so placed that the point of the funnel rests against the rod. As to the material of which the rods are made, it seems to make very little difference; I have generally used rods of iron, as that metal is least liable to contaminate medicinal substances. Rods of copper or brass will answer, and for liquids containing tannin are to be preferred. If I am correct in my explanation, it will naturally follow that rods which are the best absorbers will be most efficient; and consequently that rods made of rough iron will be the best. The idea of using rods of glass never entered my mind until lately, when I performed the eleventh and twelfth experiments. The glass rods answered in these cases, and for liquids which would be injured by contact with metals are to be preferred, but must be used with great care on account of their inferior absorbing power.

ON PRESERVATION OF THE OILS OF ORANGE AND LEMON.

To the Editor:

Showing a friend, a few days ago, some oil of lemon, which I had kept fresh and fragrant for over one year, he urged me to communicate the process to the Journal for publication.

The operation is as follows: To every pound of oil 1 oz. of alcohol is to be added, and well mixed; then 1 oz. of water is put with it, which again withdraws the alcohol from the oil, and collects at the bottom of the bottle as dilute alcohol.

The oil I have treated in this manner was in a large quart bottle, hardly more than half full, and is to day as nice as when first purchased.

In trying to explain to myself the theory of this action, the oil was closely observed, and a resinous film was found floating on the surface of the dilute alcohol. Whether the separation of this resinous film preserves the fragrance of the oil, or whether the presence of water has so good a result, I have not yet determined, but am certain that the general theory of deterioration by contact with air does not hold good in this case. Precisely the same effect was observed with oil of orange, and it was an agreeable surprise to find the experiment work so well with both oils.

I would like to add, that the resinous film observed seemed to be in much larger quantity in the oil of orange, and for that reason I think this is the true cause of its spoiling more rapidly than the oil of lemon.

I send you a sample of each of the oils.

Very respectfully, CARL FRUH.

Philadelphia, April 6th, 1871.

Remarks by the Editor. The fact that a small amount of alcohol added to the volatile oils of the aurantiaceæ preserves them, is known to many wholesale druggists, as well as pharmacists, and for many years we have preserved these volatile oils by the addition of 1 oz. of alcohol to a pound of the oil. The subsequent addition of a small quantity of water probably does not entirely remove the alcohol dissolved in the volatile oil. We would suggest to the author to continue his experiments and ascertain how much alcohol remains with the oil. It is very probable that the removal of foreign resinous and other matters has the effect of retarding oxidation by the atmosphere.

UVA URSI.

By Julius Jungmann.

(Condensed from the author's Inaugural Essay.)

[The author gives a good botanical description of the plant and its habitat; he describes the drug, refers to its introduction in medicine, and reviews the analyses made since 1809 to the present time, when he proceeds to his own experiments. The thesis was accompanied by specimens of most of the principles isolated.]

A quantity of coarsely powdered Uva ursi leaves was exhausted with cold water by percolation, the infusion heated to the boiling point, strained, a greenish flocculent coagulum of albumen was left on the strainer; the infusion, after having been more concentrated, was treated with freshly prepared hydrated oxide of lead, until it would no longer produce a precipitate; this was separated by a filter. The filtrate still more concentrated by evaporation, was divided into two parts, the first was set aside in a warm place to evaporate spontaneously, the second was treated with strong alcohol; this produced a bulky precipitate of gummy matter, which was removed by filtration; the alcoholic filtrate was again divided into two portions, the first set aside to evaporate spontaneously, the second evaporated to a syrup and then treated with ether; the different ethereal solutions were mixed and evaporated at common temperature. The residue consisted of a mass of nearly colorless prismatic crystals of considerable size, of a bitter slightly acrid taste, with a small quantity of resinous matter of peculiarly disagreeable odor adhering—Ericolin.

They could be easily purified by either washing them with ether, which would dissolve out the resin, or else by dissolving them in a small quantity of boiling water, filtering and recrystalizing; thus purified from water they were inodorous, not near as large, but small needles having a silky lustre.

The alcoholic solution yielded a dark colored extract nearly black; this was redissolved in alcohol and treated with animal charcoal, filtered and again evaporated spontaneously; yielded, after being pressed and dried, yellowish white crystals of a flocculent character having no odor.

The aqueous solution, which had been set aside in a warm place was found, after about two weeks standing, to consist of a soft extractive mass, covered all over the surface with small white crystals, very dif-

ficult to remove on account of the large amount of black, gummy extractive adhering to it. The crystals contained in this mass could only be obtained after long and repeated treatment with animal charcoal; to remove coloring matter and other impurities, it might be purified by precipitating the coloring matter by a solution of *alum*, but this mode of proceeding can only be recommended when *arbutin* is the only object in view, otherwise it is objectionable, as it complicates the process. A quicker way, however, to obtain the crystals, I found to be by treating the extractive mixture with a mixture of alcohol and ether, in which they readily dissolve, leaving behind nearly all the impurities; as thus obtained the crystals have, in their moist condition, a yellowish color, becoming nearly white when dried; they possessed the same properties as those obtained previously.

All the crystals obtained by these different processes proved to be *arbutin*, the discovery of which was first announced by Kawalier in 1852.

A second quantity of leaves was reduced to a coarse powder, decocted with water, the decoction strained and precipitated with neutral acetate of lead, the precipitated lead salt was filtered off and the filtrate was treated with basic acetate of lead, until a precipitate was no longer produced, this being filtered out. Sulphuretted hydrogen gas was passed in the filtrate until all the lead was precipitated; the sulphuret of lead was then removed by a filter, and the excess of hydrosulphuric acid by heating the filtrate; this was evaporated to a soft extract, redissolved in water, treated with animal charcoal, then again filtered and evaporated and, while hot, set aside. After about 24 hours standing the bottom of the vessel was covered with bunches of small crystalline needles of arbutin; these were pressed and dried between filtering paper and purified by redissolving them in a small quantity of boiling water, and again allowing the crystals to separate; these when pressed and dried, consisted of small prismatic needles having a silvery lustre. This second process for obtaining the arbutin is in the main points the original one of Kawalier, except that he does not precipitate with *basic* acetate of lead, which, however, removes nearly all the gum and coloring matter, and thereby facilitates the crystallization to some extent.

Arbutin generally crystalizes from ether in prismatic needles of considerable size and perfectly colorless from an alcoholic solution, in small acicular crystals of a white color, and in small bunches of needles

from water; it is neutral in its behaviour, very soluble in warm or hot water, less in cold water or alcohol, more in hot alcohol, very sparingly in ether; a concentrated solution of arbutin is precipitated by strong alcohol or ether added to it, but the precipitate rapidly disappears on shaking. Concentrated sulphuric acid or hydrochloric acid added to the crystals on a small plate, gradually dissolves them without change of color. With nitric acid the crystals first turned black, and then slowly dissolved, the acid assuming a yellow color and giving off fumes of nitrous acid. Arbutin in aqueous solution does not affect an alkaline solution of sulphate of copper, the salts of lead, acetate and subacetate do not precipitate it, salts of iron have no effect upon it; other reagents for organic bodies as tannic and gallic acid, bichloride of mercury, nitrate of silver, iodide of potassium and bichloride of platinum were tried without any results.

While experimenting with these reagents, I accidently found a very characteristic and remarkable test for arbutin; when a solution of arbutin in water is rendered alkaline by ammonia, or any other caustic or carbonated alkali, and then phosphomolybdic acid is added, a blue color is produced; in strong solutions the coloration is of a deep azure blue, but the bluish hue can be observed even in very dilute solutions. One grain of arbutin was distinctly indicated in twenty pints of water (1 in 140,000); this reaction does not occur with molybdate of ammonia, nor does it take place when phosphoric or phosphomolybdic acid is acted upon by an alkali alone.

A solution of arbutin may be perfectly colorless but still impure; when to an impure solution of arbutin, ammonia or any caustic or carbonated alkali is added, a deeper, sometimes orange color is produced, while a solution of pure arbutin is not affected in this way.

[The author now describes the composition and glucoside nature of arbutin and the mode of obtaining hydrokinone, the literature on the subject being reviewed and compared with his experiments.]

E. C. Hughes, in an essay on *Uva ursi*, published in the American Journal of Pharmacy, 1847, describes a crystalline principle which he obtained from the leaves and to which he gave the name "Ursin." This ursin, although it has not been noticed in European literature, has received some attention, and has generally been regarded as a distinct principle in American works. As this was obtained before the known existence of arbutin, and as its mode of preparation is similar to that

of arbutin, I was led to suppose that the two might perhaps be identical; to satisfy myself, I prepared some ursin according to Hughes' method, which consists in maceration and percolation of the leaves with cold water, precipitating the tannin by a solution of gelatin, filtering and evaporating to dryness, treating the remaining extract by strong alcohol, the alcoholic solution with animal charcoal, filtering and evaporating spontaneously. By this process an acicular crystalline mass, to which a small quantity of resin adhered, was obtained having nearly all the properties of arbutin; the solution rendered alkaline, produced a blue color with phosphosmolybdic acid, and it yielded, when boiled with dilute sulphuric acid, the same product of decomposition, hydrokinone, besides separating ericolin.

Hughes states, however, that his ursin was precipitated by carbonate of potassa and by the solution of subacetate of lead, while it was not affected by the *tincture* of chloride of iron; but as he uses a solution of gelatin to precipitate the infusion of the leaves, he only gets rid of the tannic acid while the gallic acid remains in solution, and is afterwards obtained together with the arbutin, (his ursin). A solution of this mixture, then, of course precipitates with basic acetate of lead, but then it ought to be affected by the salts of iron; but the tincture which he used is a very uncertain test, owing to the free acid it contains, which does not indicate small quantities, as in this case, while the solution of subacetate of lead precipitates even the smallest trace of gallic acid. Carbonate of potassa would produce a slight change in the color, but an actual precipitation did not take place. The ursin of Hughes must therefore be considered as an impure arbutin.

[The author then minutely describes the action of nitric acid on arbutin and the production of binitro-arbutin, discovered by Strecker; also, the decomposition of this compound into sugar and binitrohydrokinone, after which the effect of chlorine upon arbutin is considered.]

Arbutin has also been found abundantly in *Chimaphila umbellata*, and it probably exists in a number of ericaceous plants. Its medical properties have never been practically applied; it was at one time believed to represent the diuretic properties of Uva ursi, and Hughes states that one grain of his ursin proved a powerful diuretic. The celebrated pharmocologist, Dr. Schroff of Vienna, who experimented with pure arbutin, states, however, that it possesses no diuretic pro-

perties at all; he gave it in doses as high as eight grains, and could not detect it in the urine.

When the mother-liquor from arbutin is heated with a dilute acid (sulphuric or muriatic) a resinous body separates, which has received the name of ericolin; this again is a glucoside, which, when treated with a dilute acid, splits into grape sugar, and an odorous substance having the character of a volatile oil, ericinol; both have been noticed already by Kawalier in his investigation. In preparing ericolin from the mother liquor of arbutin, I found that a portion of ericolin is decomposed as soon as it forms into ericinol, giving rise to the strong disagreeable odor of the latter. Ericolin is a dark brown resin, becoming somewhat lighter when dried and rubbed to powder; its chemical composition is $C_{68}\ H_{56}\ O_{42}$. Its decomposition into ericinol is shown by the following:

Ericolin.	Ericinol.	Grape Sugar.
$C_{68}H_{56}O_{42}+8HO$	$=C_{20}H_{16}O_2$	$+4C_{12}H_{12}O_{12}$.

[The literature on ericinol and ericolin is now reviewed, and their occurrence in different plants spoken of. The precipitate, obtained with hydrated oxide of lead was found to contain tannin, gallic and malic acids, but to be free from tartaric and citric acids. The precipitate obtained by adding alcohol in a concentrated infusion of the leaves, contained gum, glucose and a lime salt. The leaves, previously exhausted with water, were treated with ether, and Trommsdorff's urson was prepared from the ethereal tincture (see Am. Journ. Ph., 1854.)]

Trommsdorff's process directs the ethereal extract to be washed by ether before treating with alcohol; this removes, besides the coloring matter, some fatty matter; but when operating upon larger quantities, I believe that animal charcoal will answer the same purpose. Another way to prepare urson is to percolate the leaves, previously exhausted by water with strong alcohol; the dark green tincture deposits already on standing a large quantity of nearly white urson, which only needs recrystallizing; the remainder of the tincture is evaporated, treated with water, and then washed with ether and recrystallized from alcohol. Urson, when pure, possesses neither odor nor taste; it is insoluble in water, sparingly soluble in alcohol and ether. It is not affected by alkalies or dilute acids.

Concentrated sulphuric acid turns it black and gradually carbonizes it, the acid assuming a red color. Concentrated nitric acid turns it yellow, gradually dissolving it, giving off nitrous acid. When heated,

urson melts into an amorphous transparent mass; at a still higher temperature it boils and sublimes in a test tube unchanged. Its medical properties have as yet not been ascertained, at least no physiological experiments have been made with it, and very probably it is entirely inert. A small quantity of *volatile oil* was found in the aqueous solution of the ethereal extract, besides some tannic and gallic acids.

The organic constituents of Uva ursi as obtained by this investigation, therefore, are:

Arbutin, and its product of decomposition, hydrokinone; ericolin, ericinol, urson; (ursin, the diuretic principle of Hughes, was found to be impure arbutin;) tannic, gallic and malic acids, then a small quantity of volatile oil, fatty matter, wax, gum, sugar, albumen, coloring matter, etc.

The test for arbutin may perhaps serve for finding this principle, in plants, without isolating it, for, an infusion of Uva ursi, when diluted with sufficient water to make it perfectly colorless, and then rendered alkaline, produces, on the addition of phosphomolybdic acid, the blue reaction due to arbutin; when the alkali (ammonia) is added to the diluted colorless infusion, a color (orange) again appears, owing to the astringent acids present; this color must also be removed by again diluting it with water, before the final addition of the phosphomolybdic acid.

This test cannot be applied to a strong infusion because phosphomolybdic acid reacts with tannic and gallic acids green, and the blue color cannot then be observed.

ERYTHROCENTAURIN IN AMERICAN CENTAURY.

By John F. Huneker.

(From the Author's Inaugural Essay).

This principle was discovered in European Centaury (*Erythræa centaurium*), a few years ago, by Méhu, a French chemist, who obtained it in the minute quantity of one grain in three thousand grains of the herb. The question very naturally arose, whether American Centaury (*Sabbatia angularis*) also contained this principle; the experimenter will prove that it may be obtained.

The flowers and leaves of *Sabbatia angularis* to the amount of two pounds were exhausted with one gallon of water, a portion of which was evaporated by a water bath, and allowed to stand to deposit the

apotheme. This was separated by filtration, and strong alcohol added to the filtrate, which precipitated gum. On again filtering, the infusion was evaporated to the consistence of a syrup and, on cooling, washed with strong ether, which took up erythrocentaurin and deposited it on spontaneous evaporation. Erythrocentaurin, as thus obtained, is a non-nitrogenous principle, in small acicular crystals, which are transparent, but in this case were contaminated with yellow coloring matter, and, being in such a small quantity, the experimenter feared losing them in decolorizing.

The crystals have a sharp acrid taste, reminding one of tobacco, and are soluble in alcohol, ether, water, alkalies in solution, and acids, but insoluble in fixed and volatile oils, being also slightly volatilized by heat.

The only proofs that they are similar to erythrocentaurin of the European Centaury are: 1st, that they exist in the same minute quantity. 2d, that they are *reddened* by solar light, but if dissolved and recrystallized, regain their original color. Therefore there is not a doubt but that these principles are similar in composition and character.

[The author made a series of experiments to determine the proximate composition of American Centaury, and found, besides erythrocentaurin, resin, chlorophyll, fatty matter, gum, albumen, pectin, bitter extractive, trace of volatile oil, an organic acid, red coloring matter and salts. The author was unsuccessful in his attempts to isolate and crystallize the bitter principle.

The author regards the aqueous extract as the most concentrated pharmaceutical preparation; he gave ten grains of it to a half grown cat, which in a short time appeared to be under the influence of a narcotic sedative; after sleep, lasting for two hours, violent purgation set in, causing death in 24 hours.—Editor.]

CRAB ORCHARD SALT.

By John T. Viley.

(From the Author's Inaugural Essay.)

This salt is obtained from the mineral waters near Crab Orchard, a small town in Lincoln County, Kentucky, from which place it derives its name. In the year 1824 or 1825, a gentleman by the name of James Dollins first noticed on his farm a crystalline salt.

Not knowing, at first, what it was, he began to investigate the matter, and found it was left after evaporation of the water by the heat of the sun. He carried home some of the water, and, by boiling it down, obtained a small quantity of salt, which he carried to Crab Orchard, to learn what kind of salt it was. Physicians immediately pronounced it Epsom salt; but, upon careful examination and experiment, it was found to contain other constituents than sulphate of magnesia, and also to differ somewhat in medicinal effects, so they named it Crab Orchard Salt, in contradistinction to Epsom salt. It was soon after obtained in different localities in that section, and, in a short while, farmers began to make it in small quantities for home consumption; gradually it became known to parties, from different parts of the country, visiting the town, to try the medicinal effects of the waters in the neighborhood, of which there are several excellent varieties, until it is now used, in preference to Epsom salt, in all parts of Kentucky and most of the adjoining States.

Crab Orchard salt is made by simply boiling the water, from the springs, in large iron kettles, to a certain point, then allowing it to settle, (the more thoroughly it settles, the dryer and nicer the salt will be;) the clear liquid is then decanted and evaporated to dryness, being stirred near the close, to granulate the salt. Nine gallons of water yield a pound of the salt. About six thousand pounds of the salt was produced in 1869. This salt is said to be counterfeited to a considerable extent in Louisville and Cincinnati.

There is quite a number of mineral springs in the vicinity of Crab Orchard, differing slightly in composition, as will be seen from the analyses of the Grove, the Field and the Sowders springs, published with the second report of the Geological Survey of Kentucky, made, in the years 1856 and 1857, by David Dale Owen.

The salt is obtained from the two last-mentioned springs, and contains, after having been dried at 212° F., in one hundred grains, as by analysis of Dr. Robert Peters, of Lexington, Ky.:

Sulphate of Magnesia,	63·19
Sulphate of Soda,	4·20
Sulphate of Potassa,	2·80
Sulphate of Lime,	2·54
Chloride of Sodium,	4·77
Carbonate of Lime, Magnesia, Iron and Silica,	·89
Bromine, a trace.	
Water,	21·61

As it was interesting to make a fuller examination of the Crab Orchard salt in this market, and especially to examine it for the rarer elements, I have made an analysis of a sample, obtained from Messrs. Bullock and Crenshaw, in the laboratory of Dr. A. Genth, of Philadelphia, to whom I feel under many obligations for valuable aid and suggestions. I am also indebted to Dr. Robert Bridges, who kindly examined the separated alkalies with a spectroscope. The following are the methods which were employed :—

One gramme of the salt was dried, for several days, over sulphuric acid, losing 6·030 per cent. of moisture; on exposure to a temperature of 120° C., it lost an additional quantity of water, viz., 25·57 per cent.; ignition, at a dull red heat, produced a loss of 12·95 per cent of water and a small quantity of organic matter, the total loss by drying and ignition being 44·55 per cent. One gramme lost, on ignition at a dull red heat, 44·76 per cent. One gramme was dissolved in water, acidulated with chlorhydric acid; the insoluble residue being filtered off, it was precipitated with chloride of barium, for sulphuric acid; the sulphate of barium, washed and ignited, weighed 1·0304 grammes, equal to 35·379 per cent. of sulphuric acid. One gramme, treated in a similar way, gave 35·578 p. c. of sulphuric acid. Ten grammes were dissolved in water slightly acidulated by nitric acid; the insoluble portion being filtered off, the solution was treated with nitrate of silver for chlorine, the washed chloride of silver was reduced to metallic silver, by boiling with soda and a small quantity of glucose; this, being washed, dried and ignited, was then treated with a few drops of acetic acid, and again washed, to remove the last traces of soda. The metallic silver weighed 0·0885 gramme, equal to 0·291 per cent. of chlorine. Two grammes were dissolved in hot water, the insoluble residue, being washed, dried, ignited and weighed, gave 0·380 per cent. To the filtrate from the insoluble matter, chloride of ammonium was added, then ammonia and oxalate of ammonia, by which the lime and sesquioxide of iron were precipitated, which, being washed and ignited, were moistened with carbonate of ammonia, reheated, to expel the latter, and weighed, the weight of the mixture being ·0216 gramme. This was treated with dilute nitric acid, which dissolved the carbonate of lime, and left the sesquioxide of iron, which, after ignition, weighed ·0028 gramme or ·14 per cent., giving ·0188 gramme carbonate of lime, or ·526 per cent. of lime. The filtrate from the lime and iron precipitate was precipitated with

phosphate of ammonia, from an ammoniacal solution; the phosphate of ammonia and magnesia thrown down was filtered off, washed with dilute ammonia water, dried and ignited; the pyrophosphate of magnesia, thus obtained, weighed ·8354 gramme, equal to 15·052 per cent. of magnesia. Two grammes were dissolved in water, and precipitated by acetate of lead, by which the sulphuric acid was removed, and the bases converted into acetates. The filtrate was evaporated and ignited, the mixture of magnesia, oxide of lead and carbonate of lime lixiviated with boiling water; the filtrate was evaporated with bichloride of platinum (after acidulation with chlorhydric acid). The chlorplatinates of potassium and sodium were separated by alcohol; the chlorplatinate of potassium was decomposed by sulphuric acid; the mixture with a little oxalate of ammonia was heated to redness, to reduce the platinum, which being washed and weighed, equaled ·0423 gramme, equal to 1·012 per cent. of potassa. Two hundred grammes were dissolved in water and filtered from the insoluble residue. This was examined, qualitatively, and found to contain, principally, carbonates of lime and magnesia, silicic acid, both soluble and insoluble forms, some sesquioxide of iron, alumina, oxide of manganese and fluoride of calcium. A slight excess of acetate of lead was added, to precipitate the sulphuric acid, and convert the bases into acetates; after filtration, these were evaporated, decomposed by heat, and lixiviated by boiling water. The filtrate was precipitated with sulphhydric acid, the sulphide of lead separated by filtration, and the liquid acidulated with chlorhydric acid, was evaporated till chloride of sodium began to separate; then chloride of platinum was added, to separate the chlorplatinates of potassium, rubidium and cæsium (should the latter be present). The mixture was then evaporated to dryness over a water-bath; the dry mass treated with dilute alcohol, to remove the chloride of sodium, then washed with stronger alcohol. I obtained about 8 grammes of chlorplatinate of potassium, which was boiled with 160 cubic centimetres of water, filtered, and the insoluble residue ignited, the mass treated as above described, and the resulting mixed sulphates were tested with the spectroscope, by which rubidium was very distinctly recognized. The filtrate from the chlorplatinates was boiled, to drive off the alcohol; the platinum precipitated by sulphhydric acid, and the chlorides evaporated to dryness, they were powdered, boiled with absolute alcohol, and filtered and washed with alcohol; this filtrate was evaporated to dryness, the dry

salt dissolved in very little water, phosphate of ammonia added, and the liquid evaporated to dryness. The dry salt was treated with ammonia water, allowed to stand over night, filtered off and the phosphate of lithia washed with ammonia water. It was carefully ignited and weighed, giving ·0420 gramme of phosphate of lithia, equal to ·008 per cent. of lithia. For an easier examination with the spectroscope, the phosphate of lithia was dissolved in a few drops of nitric acid, (diluted,) and evaporatod to dryness with a small excess of mercuric oxide, the dry mass was moistened with water, and again evaporated to dryness; being again dissolved, the phosphate of mercury was filtered off, the filtrate freed from mercury by sulphhydric acid, and the nitrate of lithia evaporated to dryness; and was proved by the spectroscope to be perfectly pure lithia. One gramme, after ignition, was moistened with a few drops of dilute sulphuric acid; the excess driven off by heating to redness. After deducting ·0052 gramme for insoluble matter and ferric oxide, the sulphates of magnesia, lime, soda and potassa and lithia weighed ·5494 gramme. The magnesia was determined in this mixture, and found to be 14·800 per cent. The mean of the two magnesia determinations is, therefore, 14·926 per cent., calculating the values found for magnesia, lime, potassa and lithia, as sulphates, it gives ·47955 gramme, leaving for sulphate of soda ·6985 gramme, equal to 3 050 per cent of soda.

From these results, the analysis of Crab Orchard salt would be as follows:—

Water, on drying over sulphuric acid,	6·030	
" expelled at 120° C.,	25·570	44·550
" and organic matter on ignition,	12·950	
Insoluble matter, (Fe_2O_3, Mn_2O_3, Al_2O_3, Mg, Ca, SiO_3, C, CaFl,)		0.380
Sesquioxide of iron,		0·140
Magnesia,		15·052
Lime,		0·526
Lithia,		0·008
Soda,		3·050
Potassa,		1·012
Rubidia, a trace.		
Chlorine,		0·291
Sulphuric acid,		35·379
		100·388
Less equivalent of oxygen for chlorine,		0·066
		100·322

From this analysis, it appears that the constitution of the Crab Orchard salt is the following;—

			SO_3
Sulphate of Magnesia,	44.778	Containing	29·852
Sulphate of Lime,	1·277	"	0·751
Sulphate of Potassa,	1·871	"	0·859
Sulphate of Soda,	6·483	"	3·652
Chloride of Lithium,	0·049		
Chloride of Sodium,	0·412		
Water,	44·655		
Insoluble Matter and Ferric Oxide,	0.520		

The salt, dried at 120° C., contains the principal constituents in the following quantities:—

Sulphate of Magnesia,	65.463
" " Potassa,	2·735
" " Soda,	9·480
Chloride of Sodium,	0·602
" " Lithium,	0·072
Water of Crystallization,	18·933

Crab Orchard salt is a brownish-white granular powder, without smell, of a saline and, at first, rather pleasant taste, with an after bitter taste. The cathartic effect of Crab Orchard salt is similar to that of Epsom salt, except, probably, milder in its action. It is also claimed, by its advocates, to have a specific action on the liver, and good tonic properties. These, together with the fact that smaller doses are required, give it, in the opinion of most of those who have used it, a decided advantage over the Epsom salt.

The dose is from half an ounce to an ounce, dissolved in water; it acts with greater certainty and more advantageously when given in drachm doses, at short intervals, till half an ounce is taken.

ON THE COMPARATIVE DIGESTIVE POWER OF HAWLEY'S AND SACCHARATED PEPSINS.

By E. Scheffer.

In the March number of the American Journal of Pharmacy Dr. J. S. Hawley complains of my comparative tests of different commercial pepsins, and seems to accuse me of impeaching his veracity and by my statements doing him pecuniary harm. I am not acquainted with Dr. Hawley, and my experiments were not intended to reflect upon any

of the gentlemen whose preparations I tested, my sole aim being to ascertain their medical virtue.

While Dr. Hawley seemed not to be disposed to test the saccharated pepsin, I, on the contrary, was anxious to repeat my tests in reference to his preparation, feeling conscientiously bound to do justice to him, in case I had erred in my first experiment.

Some time ago Mr. Jacob Dunton, of Philadelphia, sent me a sample of Hawley's and Boudault's Pepsins, requesting me to test them with mine, at the same time assuring me that he had them from a reliable source. I was astonished about the external appearance of Hawley's pepsin, as it was entirely different from the one I had tested before and bought from a wholesale house here. The sample was a quite white powder, while the one I had tested before was of a yellowish color.

The tests were all made in my usual way, by acidulating one fluid-ounce of water with ten drops of hydrochloric acid and adding a certain quantity of pepsin, as also of coagulated albumen. Eight grains saccharated pepsin, 100 grs. albumen; 10 grs. Hawley's pepsin, 90 grs. albumen; 10 grs. Boudault's, 90 grs. albumen.

After three and one-half hours' digestion at 105°, the saccharated pepsin had dissolved the albumen entirely, and I added 20 grains albumen more, and continued digestion until six hours had elapsed. By this time the 8 grains saccharated pepsin had nearly dissolved 120 grains albumen, only a small quantity left remaining. In Hawley's pepsin about double the quantity of albumen was undissolved as in the saccharated pepsin, and in Boudault's about four times the quantity.

At the same time with the foregoing experiments, I had tested another article of Hawley's pepsin, which I had procured from a firm in the city, of whom I had not previously bought. In appearance it was exactly the same as that tested before and mentioned in my last paper, and the result proved also that it was the same article, as 10 grains did not fully dissolve 15 grains of albumen in six hours; and 30 grains left of 60 grains of albumen a large quantity undissolved.

Upon communicating these results to Mr. Dunton, he related to me, in answer, an experiment of his, by which 10 grains of Boudault's and 8 grains saccharated pepsin had each dissolved 90 grains of coagulated albumen at 120° in six hours, while Hawley's (10 grains to 90 grains albumen) had not, and, to mention Mr. Dunton's own words,

"if I had stopped the process then, I would have considered Hawley's worthless, but I concluded to push the process further, and to my surprise, at the end of twelve hours, it had dissolved the albumen."

This discrepancy in our tests made me still more desirous to go on with them, and for that purpose I went to the trouble to get Hawley's pepsin from a third firm. Here I was fortunate to get an article different from those I had bought here before, as it was the same in appearance as the sample sent by Mr. Dunton; but at the same time I observed that it was put up in a larger bottle, and that the label had "Entered by Act of Congress" on it, in fact, that it was another preparation than I had come across before.

The following tests were executed in the manner often described: To each 10 grains of Hawley's pepsin were added 40, 50, 60, 70, 80 and 90 grains of coagulated albumen, while 120 grains of albumen were put to 10 grains saccharated pepsin. In 40, 60 and 80 of Hawley's the starch was separated from the liquid before the albumen was put in.

After three and a half to four hours' digestion, the 120 grains albumen in the saccharated pepsin were entirely dissolved, so that 30 grains more were added and the process continued. 40 and 50 albumen in Hawley's were dissolved in four hours, except a few small particles. After six hours' digestion of 90 grains albumen in Hawley's a considerable quantity was undissolved; of 80 somewhat less; while in 70 and 60 still small particles of albumen were seen. Of the 30 grains of albumen which were added to the saccharated pepsin after the 120 grains had been dissolved, not more was left undissolved than in 70 Hawley's.

To comment upon these results I leave to impartial readers, and hope and wish that some of my colleagues will not shun the little trouble and repeat these simple tests to their own satisfaction. But it is certain that Hawley's pepsin, as we had it here in market heretofore, is a different article from the one he prepares now, unless all Hawley's pepsin we had used here before had been spoiled by age, in which event I would friendly advise Dr. Hawley to leave the acid out of his preparation.

My opinion from the first was, that Boudault had made a mistake in adding lactic acid to his preparation, and then by mixing it with starch. Such a mixture, if not perfectly dry, will and must spoil,

particularly when the bottle into which it was filled was in the least damp.

I do not want to be too sanguine about my preparation, as it has yet to stand the heat of summer; but I feel confident, by the way it is prepared, that summer heat will not influence it.

Before concluding I would like to remark that, from the first start, saccharated pepsin could have been made stronger, but, as I remarked in a former article, I wanted to bring it in conformity with the liquid pepsin, which during the last year our best physicians here have found a valuable medicine, so that one grain corresponded to a teaspoonful of the liquid. My standard is, that 10 grains saccharated pepsin in one fluidounce of water acidulated with 10 drops hydrochloric acid must dissolve 120 grains of coagulated albumen in four hours at 105°. It might be stronger, but I never allow it to be weaker, as every batch made is tested before being filled into bottles.

Louisville, Ky., *April*, 1871.

LARGE DOSES OF CHLORAL HYDRATE.

Editor American Journal of Pharmacy:

Dear Sir,—As the article of chloral hydrate is a new one, and anything throwing light upon its action being of interest to the profession, I desire to inform you of a case which, for the large amount taken without fatal results, exceeds any I have heard of. The party was an old opium-eater, who wished to quit the habit, and resorted to the hydrate to relieve the nervousness which followed the abstention. In five consecutive days he took 5 ozs. avd. without any bad effects. This is a strong contradiction to the recent opinion of Dr. Richardson, of England, who stated 180 grains to be a fatal dose, and that it was not prudent to give more than 120 grains in 24 hours, as the system could not decompose and eliminate more than from 5 to 7 grains per hour; or, does the habit of opium-eating destroy the susceptibility of the system to the effects of the chloral? I have seen no opinion on this subject, and would be pleased to hear of any.

Very respectfully,

B. Lemly.

Jackson, Miss., April 10, 1871.

[We know of several cases of delirium tremens in which large doses of chloral hydrate (40 to 60 grs., repeated at short intervals) were

given with good effect. The largest quantity taken in a short time, that came under our notice, was six drachms in the course of a few (10 or 12) hours, but we do not know the nature of the disease nor the habits of the patient.—Editor.]

ON BEEF EXTRACT IN COMBINATION.

By Prof. Edward Parrish.

The greatly increased reliance by practitioners of medicine on the use of proper nutriment, not only as an aid to convalescence, but also to sustain the forces of life in the incipient stages, and, indeed, throughout the course of some very prevalent diseases, has called for a variety of beef extracts for the ready preparation of essence of beef and beef tea. The large sale of these attests the value placed on them, not only by physicians but by the public at large, and yet the idea of making articles of diet from something bought at the drug store, and having some of the characters of a medicine, is so repulsive to the keen sensibilities of many invalids, that often resort is had to the tedious extemporaneous methods of extracting the juice directly from fresh beef.

Moreover, it is often observed that, however nicely made, essence of beef and beef tea soon lose their relish when given constantly, under medical advice, or as a part of the treatment—a distaste which is sometimes due to the disease, but perhaps oftener to the fact that variety constitutes one of the chief attractions in matters dietetic.

In giving medicines, the importance of consulting the taste of the patient is less recognized; they are taken as a disagreeable necessity, and are not expected to possess the attractions which usually pertain to articles of diet.

These considerations seem to favor the idea of combining beef extract into pharmaceutical preparations, and thus giving it at stated intervals, *nolens volens*.

The composition of such preparations being unknown to the patient, and the taste being disguised by admixture with suitable adjuvants, that feeling of disgust created by the idea of animal food in an undefined state, intermediate between medicine and diet, is avoided.

Of the several proprietary beef compounds recently introduced I have little knowledge, and have no doubt that they are useful. The object of this paper is not to supersede these, but to point out a method

of varying the composition of nutritive medicinal compounds, and to put it within the reach of all to meet the requirements of the medical practitioner, by furnishing any of these extemporaneously, as required.

Beef stock, as sold in tin cans, soldered, has been cheap since the war, and by solution in glycerin, diluted with water, may be brought to a tolerably permanent fluid, miscible with pharmaceutical preparations. The proportion may be six parts of beef stock to three or four of water, and one of glycerin. In time this becomes gelatinous, probably by the glycerin combining with gelatine, always present in the stock.

Experiments tried by exposing this fluid to a temperature and other circumstances favorable to putrefaction, indicate that in midsummer it would be necessary to keep it in a cool place, yet probably no further difficulty would be experienced with this than with many other preparations which during the intense heat of our summers require special precautions to prevent decomposition.

In the absence of beef stock resort may be had to either of the solid extracts of beef. I have dissolved Tourtellot's extract in eight parts of water, and added half a part of glycerin, but the solution, like the foregoing, is very inelegant. A good addition to either of these is caramel, which improves the color and gives a flavor of bitterness.

Gelatine is the ingredient which interferes with the eligible appearance and physical properties of these solutions, and hence to remove this without materially impairing their nutritive qualities is a desideratum. Solutions of tannin added in small portions, after largely diluting with water, causes a white flocculent to separate, which may be removed on a filter or Canton flannel strainer, and then, on evaporation to about the consistence of syrup, we have what may be termed a clarified solution of beef extract, preserved by glycerin. The tannin should be added with care, not to have an excess, and the filtration should be resorted to before the solution is inspissated, and yet after heat has been applied.*

The beef basis being at hand, it is easy to make suitable extempo-

* Liebig's beef extract is free from the objection arising from the presence of gelatine, and, as it is desirable to dispense with the tannin treatment, and to be able to prepare an eligible fluid by an easy and quick process, resort may be had to this elegant though costly product.

raneous mixtures with iron, quinine, the phosphates, and other tonics, dissolved either in very dilute alcoholic, or in saccharine, menstrua. Some judgment is required in the selection of these. As a rule, sweet syrups are best adapted to children; molasses is used in one of the popular proprietary nutritive tonics; but, on the other hand, great care is required not to cloy the stomach of an adult with sweets constantly administered.

Fluid extract of liquorice is one of the best excipients for disguising the meat flavor; that made from the root by the use of diluted alcohol gives a strong liquorice flavor and taste without much body. Diluted phosphoric acid, or the compound syrup of phosphates, is a good addition. Strong alcoholic liquids would be incompatible with it, but wines mix well, increasing fluidity and producing but slight precipitation. Wine of iron or bitter wine of iron may be advantageously added in the proportion of 1 part of the wine to 3 of the *Extractum carnis fluidum*.

FERRATED ELIXIR OF CINCHONA.

By the Editor.

A correspondent requests us to publish a good formula for this elixir. The first one published is that of Mr. James T. Shinn.* Another one, differing somewhat from the former, was communicated to this journal by Mr. Wm. C. Bakes.† At our request, Mr. Wm. McIntyre, of this city, has furnished us with the following formula for elixir of calisaya with pyrophosphate of iron, in which calisaya bark is employed:

Take of Calisaya,	℥iv.
Sweet Orange Peel, recently dried,	℥iii.
Coriander,	ʒvi.
Ceylon Cinnamon,	ʒiv.
Cardamom,	
Anise, *aa*,	ʒij.

Prepare these for percolation, and displace with a mixture of one quart stronger alcohol and three quarts of water.

To this tincture add

Oil of Orange (fresh),	40 m.
" Lemon, "	16 m.
" Almonds, " (essential)	4 m., dissolved in Alcohol, four fl. drs.

* Am. Jour. Ph. 1862, p. 204. † Ibid. 1863, 228.

Agitate this mixture with moist freshly precipitated hydrated sesquioxide of iron (well washed), prepared from an aqueous solution of the sesquichloride, for three or four days, or until a portion filtered off shows no reaction with the tincture of chloride of iron. Filter, and dissolve in it, without heat, two and a half pounds (av.) sugar. Add 1024 grs. pyrophosphate of iron, previously dissolved in a small portion of water, and make up the measure of one gallon, if necessary, by the addition of water. If a more reddish color is wanted, use a few grains of soluble citrate of iron.

The elixir thus prepared will keep well in color, and has a resemblance to the article extensively advertised under the same name.

If the cinchona bark contains 3 per ct. of alkaloids, and supposing the bark to be entirely exhausted, one gallon of elixir prepared according to the above formula would contain about 60 grains of alkaloids, or nearly half a grain to the fluidounce. Cinchona bark, however, cannot be completely exhausted by weak alcohol,* and after the treatment of the resulting tincture with hydrated sesquioxide of iron, the natural combination of the cinchona alkaloids is broken up, and nothing of medicinal value is retained by the liquid except the alkaloids.† The aromatics used in most of the formulas I believe add comparatively little to the medicinal virtues of this preparation, which aims, ostensibly, to unite the tonic properties of cinchona and iron. These considerations induced me to take advantage of the excellent combination of aromatics with calisaya bark, which was suggested by Dr. Squibb,‡ and has met with great favor by the medical corps of the U. S. Army. Accordingly, I have dispensed for the last five years a ferrated elixir of calisaya made by the following formula, and manipulated as follows:

1. Triturate magnes. carbon. ℥ss. first with the following volatile oils: Ol. aurantii *m* xx, ol. anisi *m* xv, ol. coriandri and cinnam. *aa* *m* 10, ol. carvi *m* v; then, with a mixture of 2 oz. alcohol and 14 oz. water, throw upon a filter and wash with water until the filtrate measures 3½ pints.

2. Mix tinct. cardam. (simpl.) f℥ij, tinct. zingib. and calami *aa* f℥i, alcohol Oj, and add syrup. simpl. Oj.

3. Dissolve unbleached quinia ʒiss, with acid. citr. ʒijss, in alcoh. dilut. f℥iv.

* Am. Jour. Ph. 1861, 194. † Ibid. 1861, 304. ‡ Ibid. 1863, 230.

4. Dissolve ferri pyrophosph. ʒxx, in aq. ferv. fʒviij.

Add solution No. 3 to No. 2; then add No. 4, then No. 1, and finally add 1½ pint simple syrup and ½ pint alcohol. The whole measures 8½ pints, and may be colored by caramel to suit; each fluidounce contains about 9½ grs. pyrophosphate, ⅜ gr. alkaloids, and 1 gr. each of ginger, calamus and cardamom. It has a very pleasant, warm, aromatic, but, at the same time, a decidedly bitter, taste. The unbleached quinia may be prepared from the infusion of calisaya bark, made with acidulated water, by precipitating with an alkali. I have come into possession of a chinoidin containing a large percentage of quinia and quinidia, which has been used with advantage.

The two formulas published above represent the two views held by our pharmacists, namely, that cinchona bark, as such, and the isolated alkaloids alone should be combined with salts of iron.

GLEANINGS FROM THE GERMAN JOURNALS.

By John M. Maisch.

Alkaloids in Boraginaceæ.—Prof. Buchheim proved with tannin, phosphomolybdic and phosphotungstic acids, the presence of traces of alkaloids in the infusions and tinctures of Anchusa officinalis, Echium vulgare, Lycopsis arvensis, Symphytum officinale, Pulmonaria officinalis, Lithospermum arvense, Myosotis palustris and stricta; the alkaloids could not be isolated by means of the above precipitants; by Stas' method they were obtained as amorphous, brownish, hygroscopic masses of alkaline reaction, and readily soluble in alcohol and water. The extracts of the two first named plants produced upon frogs faint symptoms of curare poisoning, all the others merely pain at the place of application.—*Zeitschr. d. Oesterr. Apoth. Ver.* 1871, 106, 107.

Chloride of Ethyliden is coming into use in Germany as an anæsthetic. Prof. Langenbeck compares it with chloroform, and finds that the chloride of ethyliden acts in smaller doses and more rapidly, usually in one to one and a half minutes; that its inhalation is more agreeable, does not irritate, and appears not to produce coughing; that its anæsthetic effects continue while the patient returns to consciousness; that alterations in the pulse and symptoms of suffocation are not observed. The remedy should be chemically pure, with a boiling point of 60° to 62° C.—*N. Jahrb. f. Pharm.*, 1870, *Aug.* from *Berl. klin. Wochenschr.*, 1870, *No.* 33.

Decomposition of Caffeidina.—Strecker reported in 1862, the decomposition, by caustic baryta, of caffeina into caffeidina. O. Schultzen decomposed the latter alkaloid completely by baryta and obtained ammonia, methylamina, formic acid and a crystalline body, $C_6H_7NO_4$. Francis Rosengarten has now proven that the latter is identical with sarkosina.—*Ann. d. Chem. und Pharm.*, 1871, *Jan.* 1—6.

Oil of Geranium.—Dr. Oscar Jacobsen has found in commercial Indian oil of Geranium 8 per cent. alcohol, and in another sample 20 per cent. fixed oil. Repeated fractional distillation of the volatile oil yielded a distillate boiling between 232° and 233° C., and of the composition $C_{20}H_{18}O_2$. This geraniol is a colorless liquid of very agreeable rose odor, soluble in all proportions in alcohol and ether, insoluble in water, optically inactive and remains liquid at —15° C. It yields, with recently fused chloride of calcium, a crystalline compound, and with fusing hydrate of potassa, valerianic acid; chromate of potassa and sulphuric acid oxidizes it to succinic, acetic and valerianic acids.—*Ibid.*, *Febr.*, 232—239.

New Reagent for Arsenic.—A Bettendorff found that an aqueous solution of arsenious or arsenic acid, to which sufficient muriatic acid has been added until it fumes faintly, produces, with protochloride of tin, a brown turbidity, and the resulting precipitate is mainly metallic arsenic containing some tin. One millionth part of arsenic is thus readily detected. If the muriatic acid is too dilute, the reaction does not occur. Solutions of antimony are not affected. Muriatic acid containing arsenic may be purified by first precipitating with protochloride of tin, filtering and rectifying.—*Wittst. Viertelj. Schr.*, 1870, 430, from *Zeitschr. f. Chemie*, 1869, xii, 492.

Separation of Tin, Antimony and Arsenic.—F. W. Clarke (*Amer. Journ. Science*, 1870, Jan.) proposed to pass sulphuretted hydrogen into the solution of the metals, strongly acidulated with oxalic acid; the tin was stated to remain in solution. Albert B. Clark, Jr., has proven, in Wittstein's laboratory, the incorrectness of the proposed method for analytical purposes.—*Ibid.*, 549—554.

Muriatic Acid containing Bromine has been observed by Wittstein; its color was deep golden yellow; the stratum of air in the bottle had a brownish yellow color, and rapidly bleached litmus paper.—*Ibid.* 590.

Collodium Mercuriale, according to the *Giorn. d. Med. di Torino*, collodium 30 grm., terebinth. venet. 1.50, hydrarg. bichlor. corros. 0.30—0.50 grm.—*Pharm. Zeitung*, 1871, No. 5.

Glycerin in Pills.—The *Pharm. Zeitung*, No. 10, has been informed that pills containing glycerin cannot be silvered or gilt, since the lustre of both metals at once disappears, rendering the pills unsightly. Hager (*Ph. Cent. Halle*, 1871, 51) states, that this occurs only with recently prepared pills, and with older pills if prepared with an excessive quantity of glycerin. Two, and for quinia and iron three, drops of glycerin are sufficient for thirty pills.

Preparation of Chloral.—Springmühl proposes, in *Polytechn. Notizbl.*, to shorten the long process by the addition of 1 grm. iodine to 500 grm. absolute alcohol; after passing chlorine through the liquid for twelve hours, the free acid is neutralized by lime, the warm liquid filtered and distilled. Ethyliodide distils over at 72° C., and between 110° and 115° C. the chloral, which is treated in the usual way with sulphuric acid, redistillation, etc.—*Pharm. Zeit.*, 1871, No. 11.

Detection of Iodine and Bromine.—Hager describes a curious behavior of these halogens to solvents. Bisulphide of carbon agitated with bromine water, acquires a yellow color, leaving the water colorless; if now iodine is added, it will be dissolved by the carbon bisulphide, while the bromine again dissolves in the water. This displacing of the bromine from its solution in bisulphide of carbon occurs the more readily if the water contains a salt in solution, and the bromine may, by careful agitation, be dissolved in ether.

If solutions of bromide of potassium and ferric chloride are agitated with carbon bisulphide, no alteration takes place; but on the addition of an iodide, the bisulphide acquires the violet color characteristic of free iodine, and ether agitated with the aqueous liquid dissolves bromine and becomes yellow. Minute proportions of iodine (less than 1-100th) cannot be detected by these methods.—*Pharm. Centr. Halle*, 1871, 49, 50.

OIL OF PEPPERMINT AS A LOCAL ANÆSTHETIC.

Dr. A. Wright writes to the editor of the *Lancet*, (Nov. 19, 1870,) that, "a few years ago, I became acquainted with the fact of the natives, [Chinese,] when suffering with facial neuralgia, using oil of

peppermint, which they lightly apply to the seat of pain with a camel-hair pencil. Since then, in my own practice, I, in the same way, frequently employ oil of peppermint as a local anæsthetic, not only in neuralgia, but also in gout, with remarkably good results; indeed, the relief from pain I have found to be almost instantaneous."

It is worthy of note that some Chinese pharmaceutists in San Francisco and New York have been selling a remedy for neuralgia which has gained some repute. It is a liquid, put up in very small vials, holding about half a drachm each, which are sold at an exorbitant price. The liquid has a strong smell of peppermint, and is, in all probability, the oil of that plant.—*The Medical News and Library, Jan.*, 1871.

MORPHIOMETRIC ASSAY OF OPIUM.

By Dr. Theodore Schlosser.

The author regards Mohr's process, with the improvements suggested by Jakobson and Hager, as the most advantageous. He operates as follows: 200 grains of opium are digested over night in a tared 8 oz. flask with 2 oz. distilled water, until a uniform mixture, free from lumps, is obtained. 50 grs. recently prepared burned lime are slaked with about 20 drops of distilled water, then mixed with 1 oz. of water and added to the opium infusion. Water is now added until the mixture weighs 1850 grains (1600 water, 200 opium, 50 lime). The flask is then kept in boiling water for one hour, and its hot contents poured on a small filter, which has *not* been previously moistened, but is kept covered with a glass plate. Neither flask nor filter are rinsed with water. The filtrate is then weighed and 3 per cent. deducted therefrom; the remaining figure represents, according to the author's investigations, the weight of pure water contained in the filtrate. If the filtrate weighs 1100 grains, it contains 1067 (1100—33) grs. water, and represents 1600:1067::200:133 grs. opium. The filtrate is heated in a water-bath, 70 grs. granulated chloride of ammonium are dissolved in it by careful agitation, the whole again heated in a water-bath, and, after cooling, 40 grs. ether are mixed in by agitation, and the whole set aside for an hour. Should the ether not have completely prevented the adhesion of the morphia to the glass, warm water is poured upon the outside of the flask, when the alkaloid can be readily detached, and is collected upon a small filter, washed with an ounce of water and dried. Narcotina is removed by

washing it three times with 40 grs. of chloroform, after which the filter is again dried. The weight of the morphia represents the amount obtained from 133 grs. of crude opium. If in the meantime another portion of opium, obtained from different parts of the cake, has been thoroughly dried, it is easy to calculate the morphia contained in 100 grs. dry opium.

The assay is finished in 24 hours, and the morphia is obtained in a very pure condition, little colored and in a crystalline form.—*Zeitschr. d. Oester. Apoth. Vereins*, 1871, 10—12.

A CASE OF POISONING WITH GELSEMIUM SEMPERVIRENS.

By Joseph G. Pinkham, M. D., Lynn.

On the night of December 5th, 1869, I was called in great haste to see Mrs. F., a former patient of mine, who was said to be dying. In the course of a few minutes I arrived at her bedside, and found her in the following alarming condition: Totally unconscious; breathing stertorous, and very imperfect; countenance of livid paleness; lower jaw drooping, leaving the mouth wide open; eyelids partially closed, and motionless; pupils moderately dilated; pulse 100 per minute, regular, but weak. On making hasty inquiries, I ascertained that she had been taking some medicine from a quack herbalist, who recommended it, in the choice English of that refined sect, as being able to "knock pain higher than a kite." Being satisfied that the case was one of poisoning with some narcotic, I attempted to administer an emetic of sulphate of zinc; but, owing to the great difficulty in swallowing, I did not succeed in getting enough down to produce emesis. Friction and stimulants were then resorted to, and in about one hour and a half consciousness began to return. Treatment was continued, but recovery was not complete for several days, the principal complaint being of great prostration and muscular weakness, particularly of the elevators of the lower jaw, and eyelids, and the muscles of the arms. After the return of consciousness, intelligible speech was at first only possible when the jaws were supported. The tongue also was stiff, and the voice thick and guttural. The patient stated that, before she became unconscious, objects appeared double, and then she grew by degrees completely blind. She thought (and naturally enough) that she was dying. Subsequently, I saw the "doctor," and learned from him that he had given gelsemium semper-

virens. He said he had prepared forty drops of the fluid extract in a bottle, and that, contrary to his directions, the patient had taken it all in the course of a few hours. I place no reliance upon his statement as to the amount, for he was most thoroughly frightened by the occurrence, but I have no doubt, from the symptoms, that gelsemium was the drug administered. The patient asserted positively that he gave her no specific directions as to dose or intervals, but told her to take it when she had pain, and if, on holding up her finger and looking at it, it did not appear double, she was all right, and could take more.

I satisfied myself, notwithstanding the denial of both parties concerned, that he had procured an abortion upon the woman, and gave the medicine as an anodyne after the expulsion of the ovum. It seemed at first as though the case would inevitably prove fatal; nor do I see now how recovery could have taken place without remedial interference.

I should not have been surprised, at any time within an hour after my arrival, to see the jerking respiration cease, and life become extinct.

The effect of the poison, it will be noticed, was to produce a general feeling of numbness and oppression, followed by double vision, loss of sight, paralysis of the muscles of voluntary motion, with complete insensibility to all external impressions. The paralysis of those muscles, whose function it is to elevate, was more persistent than that of any others. It is easy to explain the bad respiration by the condition of muscular paralysis which existed. There did not seem to be any direct sedative action of the poison upon the heart. In regard to this point, I am inclined to agree with Dr. Bartholow in the opinion that, when the cardiac movements are depressed, it is the result of insufficient respiration.*

I gave stimulants, (brandy, ammon. carb., &c.,) on account of the alarming prostration, and because I did not know what else to do. Should another patient, similarly affected, come under my care, I should pursue the same course, with the addition, if it were possible at the time, of the use of galvanism, an agent found so beneficial, in his own case, by Dr. J. T. Main, of Unity, Maine.†

* Practitioner, (London,) Oct., 1870, p. 208.

† Boston Medical and Surgical Journal, April 15, 1869.

The notes of this case were taken chiefly at the time of attendance. Since then, I have seen reports of several other instances of poisoning with the same drug, some of them fatal.* They all agree essentially with mine in the character of the symptoms presented. It is altogether probable that my patient had taken much more than forty drops of the fluid extract.—*Boston Med. and Surg. Jour., Feb.*, 1871.

TRANSPIRATION OF AQUEOUS VAPOR BY THE LEAVES OF PLANTS.

Professor McNab, of Cirencester College, England, has recently published an important series of experiments on this subject. The plant experimented on was in all cases the common cherry-laurel, (*Prunus laurocerasus*,) and the fluid to determine the rapidity of ascent, lithium citrate, a very small quantity of which can be detected by means of the spectroscope. Dr. McNab divided the results under the following heads:—1. Quantity of water in the leaves. The mean of several experiments gave 63·4 per cent. 2. Quantity of water which can be removed by calcium chloride, or sulphuric acid, *in vacuo*. This was found to be from 5·08 to 6·09 per cent. 3. Amount of transpirable fluid in the stem and leaves, 7·58 per cent. The remainder, from 56 to 57 per cent., was therefore determined to be fluid in relation to the cell-sap of the plants. 4. Rapidity of transpiration in sunlight, diffused light, and darkness. The results given are:—In sunlight, 3·03 per cent in an hour; in diffused daylight, 0·59 per cent.; in darkness, 0·45 per cent. 5. Amount of fluid transpired in a saturated, and in a dry atmosphere in the sun, and in diffused daylight. In sunshine, the experiments gave 25·96 per cent. in an hour, in a saturated atmosphere; 20·52 per cent. in a dry atmosphere; in the shade, the results were reversed, nothing whatever in a saturated, 1·69 per cent. in a dry atmosphere. These results strikingly confirm the earlier experiments of Dehérain, that evaporation from leaves is due to light, and not to heat, and that it proceeds equally in a perfectly saturated atmosphere. 6. Quantity of water taken up by leaves when immersed in it. The mean of several experiments gave 4·37 per cent. in one and one-half hours. 7. Quantity of aqueous vapor absorbed by leaves in a secluded atmosphere. This was found

* American Journal of Pharmacy, Jan., 1870. American Journal of the Medical Sciences, Jan., 1867.

to be *nil*, again confirming the statement of M. M. Prillieux and Duchartre that plants absorb no moisture whatever in the state of vapor through their leaves. 8. Differences in the amount of fluid transpired by the upper and under side of leaves in the sun and in diffused daylight. From the upper surface in sun, 1·74 per cent. in an hour, from the under surface, 12·33 per cent.; from the upper surface, in diffused light, 2·82 per cent. in forty-eight hours, from the under surface, 16·08 per cent.; from both sides, when coated with collodion, 0·86 per cent. in sun, 2·56 per cent. in diffused light. 9. Relation of fluid taken up, to that transpired and that retained by the plant. Increase of weight of branch, in saturated atmosphere, diffused daylight, in forty-eight hours, 7·34 per cent., in ordinary atmosphere, 7·14 per cent., in darkness, 3·01 per cent. 10. Rapidity of ascent of fluids. From 4 7-12 inches in ten minutes to 8 7-12 inches in ten minutes. 11. Influences of gases on transpiration. Transpiration of fluid in oxygen in one hour in sun, 12·77 per cent., in atmospheric air, 7·5 per cent., in carbonic acid, 4·01 per cent., in nitrogen, 1·97 per cent. The bad weather and the lateness of the season terminated the experiments before several points of interest could be fully determined. A. W. B.

From the American Naturalist, March, 1871.

BISMUTH.

By A. R. Roessler.

One of the more noteworthy results of the investigations instituted under the authority of the U. S. General Land Office into the mineral products of the several States, is the discovery of the somewhat rare metal Bismuth. The specimens in the Geological Museum were brought from Archer County, Texas, through which region it is gratifying to learn that a railroad line is now being surveyed in connection with the northern counties of the State, most of which have been so much infested with hostile tribes of Indians that the wonderfully rich deposits of copper and other metals are unapproachable and worthless. The bismuth ore is associated to some extent with copper glance, but in separate veins. Its gangue is quartz, through which it is disseminated in small metallic grains, and it only requires about 500° Fahrenheit to fuse them, and the melted metal is collected as it runs from the furnace. It is of somewhat silvery brightness, with a

roseate tinge. It is used in small quantity as a component of britannia ware. One of its chemical preparations is extensively employed in medicine, and has also been applied as a cosmetic under the name of "*lily white*," in consequence of the delicate white tint of the powder. Its effect, after much use, is to leave the skin of a dirty yellow hue, and of leathery texture. The subnitrate of bismuth is one of the most extensively used remedies in that disease so common here, "dyspepsia." In the thermo-electric batteries, enabling the electroplaters to dispense with the troublesome liquid-acid-batteries, bismuth is the principal ingredient. The Texas ores are associated with the other valuable metals cobalt and nickel, which, from the specimens in hand, would seem to be in preponderance.—*Journal of Applied Chemistry, February*, 1871.

Varieties.

Test for the purity of Olive Oil.—Dr. Ramon Codina Langlies, pharmacist in Barcelona, uses the following test for proving the purity of olive oil: 3 parts nitric acid, spec. gr. 1·33, are diluted with 1 part of water. 1 grm. of this acid is added to 3 grm of the oil; on the application of heat by means of a water-bath the color of pure olive oil becomes somewhat lighter, but acquires a red tint in the presence of benne oil; 5 per cent. of the latter are readily detected. The operation requires only 15 to 20 minutes, and the coloration remains unchanged for several days.—*Journ. de Pharm.*

Dry Narcotic Extracts.—Jassoy, in Frankfort-on-the-Main, uses purified dextrin for this purpose. The purification of commercial dextrin is effected by dissolving it in 6 or 8 times its quantity of water. After 24 hours the solution is filtered from the sediment, and the clear filtrate evaporated to a syrupy consistence, when the pure dextrin is precipitated by an excess of alcohol, and set aside over night; the liquid is now decanted and the precipitate exsiccated and rubbed to powder. The yield is 40 to 60 per cent.

The narcotic extract is now heated, mixed with an equal weight of purified dextrin, and the mixture then completely exsiccated either in the drying closet or over chloride of calcium; sufficient dextrine is then added to make the weight of the dry residue double that of the extract, when the whole is rubbed into a uniform powder. The use of dextrin for this purpose was recommended as far back as 1865, by Behrens of Lausanne.

Such powdered dry extracts keep well in corked vials, are readily and rapidly soluble in water, and the aqueous solution is miscible with a moderate quantity of alcoholic liquids.—*Archiv d. Pharm.*

It is obvious that, in dispensing these dry extracts, double the weight of the prescribed quantity must be used.

Cement.—Shellac heated with ten times its quantity of solution of ammonia, forms, after some time, a slimy mixture, and dissolves in 3 or 4 weeks; this solution is recommended for fastening caoutchouc plates upon wood or metal. *Polytechn. Centralbl.*

Sugar in Urine.—Prof. Almen, of Stockholm, observed that the urine of patients who had taken oil of turpentine, contains sugar, which disappears after the oil of turpentine had been discontinued for a day. After the use of turpentine (12 grm. daily) a mere trace of sugar was observed. No reaction for sugar was obtained after the use of copaiva and cubebs.—*Apoth. Zeitung.* 1871, *No.* 4.

Erythrocentaurin * is, according to Méhu, contained also in the herb of Erythraea chilensis, *Pers.*—*Journ. de Pharm., June*, 1870.

Alcohol in acetic ether is detected, according to Frederking, by agitating the ether with an equal volume of glycerin, which dissolves the alcohol only. For obtaining absolute acetic ether, the crude distillate containing water and alcohol may be treated with glycerin previous to rectification.—*Pharm. Zeitschr. f. Russl.*

Iodine is now obtained in considerable quantities from the nitrate of soda of Tarapaca, Peru, which contains iodic acid. The mother liquors are treated with sulphurous acid, the precipitated iodine collected upon a sand filter and dried upon tiles of gypsum. In this condition it still contains water and salts; it is brought to the market as crude and resublimed iodine. The annual production, it is estimated, will soon reach 30,000 lbs.—*Dingler's Polyt. Journ.*

Application of Permanganate of Potassa.—The solution of this salt is readily decomposed by organic matter generally and particularly by vegetable tissues. Some time ago Prof. Boettger found that this solution may be filtered through gun cotton without decomposition, and recently, Dec. 3d, 1870, he suggested the latter substance as suitable for applying the permanganate solution as an antiseptic in dressing wounds, ulcers, etc. This mode of application has proved eminently successful, the bad odor of suppurating wounds disappearing almost instantly.—*Polyt. Notizbl.*

The two chairs of chemistry in the Swiss Polytechnic Institute, which were made vacant by the deaths of Professors Bolley and Städeler, are filled again by the appointment of Prof. John Wislicenus, of the University of Zürich, as Professor of general chemistry and director of the analytical laboratory; and of Prof. Emil Kopp, of the University of Turin, as Professor of technical chemistry and chemical technology and director of the technical laboratory.

* See this Journal, page 207.

A law was published in Austria and is still in force, which prohibits apothecaries from the manufacture of artificial mineral waters, and forbids to name any artificial product after any spring in imitation of which it may have been made.

Compulsory Vaccination of all children has been introduced in Alsace, by order of the provisional government in February last.—*Pharm. Zeitung.*

Minutes of the Pharmaceutical Meetings.

April 18th, 1871. Prof. Procter presiding. Some verbal corrections were made in the minutes, which were noted by the Registrar.

Prof. Parrish read a paper on Beef Extracts in Combination, and exhibited specimens of several fluid preparations made with and without treatment for the separation of gelatine, all containing glycerin as an antiseptic ingredient. He also showed some bottles of *Fleisch Extract Syrup*, imported several years ago from Frankfort-on-the-Main, the contents of which had become completely solidified.

In view of the suggestion to precipitate the gelatine by means of tannin from the beef extracts of commerce, Prof. Procter queried whether the animal alkaloids might not also be precipitated by tannin.

Prof. Maisch said that the "Liebig Company's Extract of Meat," and some other kinds made by Liebig's formula, were free from gelatine, and would furnish fluid extracts without the necessity of resorting to the process of clarifying.

Prof. Parrish remarked that he had intended to prepare some of a similar preparation from Liebig's Extract, and would do so and embody the result in his paper. On motion, the paper was referred for publication..

Prof. Parrish exhibited specimens of several farinaceous materials prepared by the Nutrio Manufacturing Company for domestic use and for infants' food. These were all made from wheat which had been heated to nearly 300° F., by which it loses from 10 to nearly 20 per cent. of moisture, and the starch is partially converted into dextrine and sugar. The Company is working under patents which apply in part to the apparatus for the application and regulation of the temperature. One of the chief advantages to be obtained by the extension of this branch of manufacture will be the cheapening of infants' food, now so extensively imported.

A general discussion followed on the process for making Ferrated Elixir of Bark, and the practicability of separating the tannin by hydrated peroxide of iron, the experience of members differing in regard to this.

Mr. McIntyre stated that, if calisaya bark is treated with a very dilute alcoholic menstruum, and the tincture then mixed with the hydrated oxide, it would cease to blacken with soluble salts of iron. He stated that he used pyrophosphate of iron as the principal salt in the elixir, and overcame the green tint by a small addition of solution of citrate of iron. He had also diluted the officinal fluid extract of cinchona with good success, instead of starting with the bark itself. He had found the solution of chloride of iron convenient for precipi-

tating the hydrated oxide with ammonia, on account of the great facility of washing out the very soluble muriate of ammonia from the magma.

Prof. Maisch expressed his preference for the cinchona alkaloids in making this elixir, and stated his conviction that few, if any, of the principal manufacturers used the bark itself, or even the alkaloids, in sufficient proportion to impart much of the tonic property of cinchona; he stated the proportion of his elixir as follows, using a chinoidin, which contains much quinia and quinidia, 90 grains to Oviiiss; 9½ grains of pyrophosphate are contained in each fluid ounce.

A general discussion grew up as to the propriety of preparing elixirs to meet the popular demand, or to fill the prescriptions of physicians. Prof. Maisch's custom is to make all such as are required in the course of his business, and to decline prescriptions which call for special proprietary preparations. Prof. Procter prefers sending to the physician for the formula in all cases in which there is uncertainty as to the composition designed, and dispensing such as are well known. Prof. Parrish's practice is to originate a formula in any case in which there is none published, taking into account the proper doses and pharmaceutical requirements of the ingredients, but in no case selling one of his own where another is evidently intended to be prescribed.

Mr. Gallard exhibited a specimen of Whitman's Cacao Butter, of fine quality, used by him in making suppositories.

Prof. Maisch called attention to the fact that the fusing point of this oil is generally stated to be at about 90° F.,* while common experience shows that suppositories made with it, without admixture, will retain their shape reasonably well throughout our hot summers.

The preparation of suppositories being under discussion, the method of preparing them without fusion was adverted to.

Prof. Procter stated that he had practiced that method on their first introduction, but noticed a difference in the facility of manipulating them according to the temperature of the hands of different persons—while some could form a suppository without inconvenient fusion, others would have the mass become too soft to handle.

Prof. Procter exhibited the remains of the retort, the explosion of which killed our late fellow-alumnus Ferris Bringhurst, together with the curved piece of iron taken from his brain, measuring about 1½ inches in length by about 1 inch in width by ½ inch in thickness.

Prof. Maisch gave the result of his analysis of several samples of assafœtida taken by the Drug Inspector of this port from different cases and from different parts of the mass, with the following result:

	No. 1.	No. 2.	No. 11.	No. 18.	No. 20.
Oleoresin, . .	34·25	41·47	61·80	37·86	28·88
Alcoholic resin, .	2·23	2·42	1·13	1·62	1·20
Total resin & vol. oil,	36·48	43·89	62·93	39·48	30·08
Impurities, . .	57·50	44·01	15·20	51·70	62·09
Gum moisture and loss,	6·02	12·10	21·87	8·82	7·83
	100·00	100·00	100·00	100·00	100·00

*Watt's Dictionary of Chemistry gives 30° C. (86° F.)

These were samples of amygdaloid assafœtida which a year ago was rejected by the purchaser as adulterated, he claiming that good assafœtida should be entirely free from sulphate of lime. The impurities in the above instance consist of gypsum and vegetable fragments, as always met with in the resinous matter agglutinating the tears.

CLEMMONS PARRISH, *Registrar.*

Editorial Department.

SALUTATORY.—The newly elected editor of this Journal commences his editorial labors with the present number. In accepting these duties, he is cognizant of the responsibility assumed by him, both towards the Journal, which, under the able and fearless management of its retiring editor, has been carried into the foremost ranks of pharmaceutical periodicals, and also towards its numerous readers, who have a right to expect that it shall maintain the high position in which it has been placed through years of patient labor. To accomplish this we shall spare no pains, but shall use our best endeavors in advancing what we conceive to be the true interests of our profession, and in this light we desire our editorial acts to be viewed, trusting that the sense of duty towards the readers, the profession generally, and toward kindred professions, will always be evident, as it will be the governing motive of our labors. Through our connection with this Journal during the past years, as one of its contributors, we are not a stranger to its readers, and in our new relation to it as editor we feel that we have no special promises to make, but we trust that with the aid of those who have heretofore so liberally contributed to its pages, and also through communications from many of our younger friends, we may be enabled to make each and every number of the Journal full of interest and of lasting value to the profession.

CLASS IN BOTANY.—The botanical excursions of the students and graduates of the Philadelphia College of Pharmacy have been resumed, and will be continued, during the Spring and Summer, every Wednesday afternoon Fairmount Park now encloses grounds which some years ago were frequently visited by botanists, and several other botanical localities will in a few years be taken up for the same purpose. The Park Commissioners, however, are disposed to extend all proper facilities for the prosecution of scientific research within the Park, and upon application the following permit was issued, the reception of which is hereby acknowledged:

Permission is hereby granted to Professor John M. Maisch for researches in Botanical Science upon the Park grounds. It is a condition of this Permit that no injury shall be done to the shrubbery and other ornaments of the Park, and that no greater quantity of specimens shall be taken than are fairly required for scientific purposes, and must be put into suitable receptacles for their preservation.

(Signed) JNO. C. CRESSON, *Chief Engineer.*
LOUIS M. CHASTEAU, *Capt. Guard.*

The fate of legislation for the regulation of the practice of Pharmacy during the last winter has not been such as the friends of the elevation of Pharmacy were justified in expecting. In all the States but one where bills were introduced the measures were defeated, partly in consequence of local patriotism, manifested by the endeavor to except certain blessed localities from the provisions of an act demanding proof of proficiency from the dealers in medicines and poisons; partly because some physicians succeeded in convincing wise legislators that by virtue of their diploma conferring the title of M. D., they were capable of doing anything and everything in the remotest degree related to physic and medicine and surgery; but partly, also, because it was extremely difficult to reconcile the wants of oftentimes very thinly populated districts of a large State with the necessities of populous cities. In a city of New Jersey, out of 45 regular physicians, 42 signed the petition in favor of the Pharmacy act. As members of an honorable profession, they showed their good will and lent their hearty support to the elevation of a kindred profession; *not one* of them signed a remonstrance, which received the signatures of a few druggists, all the eclectics and clairvoyant physicians in that city.

In Michigan, where the Pharmacy act was defeated, a bill passed the House to establish a chair of Homœopathy in the University. We admire the consistency of some of the members who voted for endowing a chair teaching how to cure disease with a small dose of nothing; they could hardly be expected to be in favor of allowing dead bodies being cut up with the view of studying anatomy. It is a *barbarous* practice, and utterly *unnecessary;* for anatomy can be studied from engravings, wax models, &c. For the sake of humanity, we hope that these wise legislators, when needing the aid of a surgeon, may be fortunate enough to secure the services of one who has had occasion to study anatomy from other sources than models and engravings, and to have their prescriptions compounded by apothecaries who have been educated to their duties.

A bill for licensing druggists has been passed by the Legislature of New York. As first passed, it had reference only to clerks, but before being signed by the Governor was recalled and altered so as to provide for the examination of the principals as well as clerks before a board appointed by the Mayor of New York city. The existence of pharmaceutical colleges in this country and in Europe is persistently ignored. We have not received a copy of the bill as finally passed, and may have a few remarks to offer in our next issue. For the present we shall content ourselves to state that the examining board is to be composed of two physicians, two pharmaceutists, and two chemists, and to lay before our readers the following well-timed suggestions from the *Medical Gazette* of New York, some of which are applicable also to other localities outside of the commercial metropolis of this continent:

As His Honor the Mayor will doubtless be overwhelmed with applications for appointments, we venture to offer for his guidance a hint that the proprietors of flourishing establishments, wherein the dispensing of prescriptions is a sort of side issue from the main traffic in patent medicines, cosmetics and "fancy articles" generally, are by no means the most eligible pharmaceutists in our midst. There are in New York several apothecaries who hold both phar-

macentical and medical degrees, and from these the fittest choice could be made for all the positions on the board. Medicine and pharmacy are such entirely distinct pursuits in a large city, that it would be a very difficult task to find even two medical practitioners who know as much of practical pharmacy as does the least informed druggists' clerk, and without such knowledge the physicians of the board must be useless incumbrances.

The Renewal of Physicians' Prescriptions.—A bill has been before the New York Legislature forbidding the renewal of prescriptions without the special order of the prescriber, but was not passed or likely to pass, according to our latest information. We are pleased to see that the subject will come up for discussion before the American Medical Association at its next annual meeting, which will be held in San Francisco in May. We trust that the matter will be thoroughly ventilated, not only upon theoretical grounds, but likewise in its practical bearings. We know several physicians of this city who have tested it practically, by having upon their prescription blanks a notice printed in plain English, that the apothecary is to retain the prescription, but not to renew it except by special order. As far as we know, these physicians have all discontinued the use of such blanks, having probably found the restrictions impracticable.

The title of Doctor of Philosophy, we are informed by the *Medical News and Library*, will hereafter be conferred by the University of Pennsylvania upon graduates in Medicine of the University (or of schools recognized by it), who shall also have attended two courses of the Auxiliary Faculty of Medicine, and passed a successful examination by this Faculty. Such a candidate for the honor must, in addition to his knowledge of all the usual branches of medicine, be acquainted with at least five branches of especially scientific learning, viz., Chemistry (including Physics and Botany), Comparative Anatomy, Zoology, Geology and Mineralogy.

On reading this announcement, our reflections were fixed mainly upon two points: 1st, that it be considered necessary, in order to become a philosopher, to previously become a physician; 2d, that a mere *acquaintance* with half a dozen sciences be deemed sufficient ground for conferring an academic degree. If we are not grossly mistaken, history teaches us that there have been and are now living many philosophers who know very little about medicine; and it is our conviction that an *acquaintance* with *all* the the branches of scientific learning ought to be the aim of good school education. We advocate the conferring of titles to the meritorious, but desire to see them restricted to those who are *proficient* in scientific learning. The field of scientific knowledge and research has become so vast that *very* few scientists of the present time will be found who could lay claim to having mastered it altogether. The result of our reflections is not materially influenced by the announcement that the University does not intend conferring this degree as a mere honorary one, but requires that the candidate shall pass an examination for it.

Is Vaccinin Identical with Arbutin?—On page 297 of the last volume of this journal, Mr. E. Claassen describes a bitter principle which he obtained from

the leaves of Vaccinium vitis idæa, Lin. Our attention was again called to this paper on reading the inaugural essay of Mr. Jungmann, published in this number, page 202. A comparison of Claassen's process with the processes used by Streeker and Kawalier, for the preparation of arbutin, will show that they are almost identical. As far as it goes, the description of the properties of vacciniin agrees with arbutin; products of decomposition, experiments on the glucoside nature of vacciniin, &c., are not mentioned. As far back as 1859 Uloth obtained from the aqueous extracts of various ericaceæ, ericinon, which Zwenger, Hesse and Himmelmann subsequently proved to be identical with hydrokinone, which is a decomposition product of kinic acid and of arbutin. The fact that kinic acid has been prepared from one or two species of vaccinium is no proof that arbutin may not occur in the same plants, or in plants of the same or an allied genus. Hence, the probabilities are in favor of the supposition that vacciniin and arbutin *are* identical.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The Causation. Course and Treatment of Reflex Insanity in Women. By Horatio R. Storer, M.D. Boston: Lee & Shepard, publishers. 1871. 236 pages.

This is a reprint of a report made by the author to the American Medical Association in 1865, and which he was authorized by the Association in 1867 to republish in book form. The subject is treated under the following headings: 1. Selection of special topic. 2. Points previously attained. 3. Work to be done. 4. The brain the seat of insanity, not always of its cause. 5. Explanations of distant causation. 6. Causation often pelvic in women. 7. Rationale of pelvic causation of insanity. 8. Indications of treatment. The last three chapters, occupying two-thirds of the pages of the book, are the most important of the special subject of this memoir, and evidence a great deal of labor and research.

Report of the Board of Health of the City and Port of Philadelphia, to the Mayor, for the year 1870. Printed by order of the Board. 1871. 8vo, 112 pages.

This report contains, besides lists of all the officers connected with the department, reports and statistical tables of the work done by and under the authority of the Board, vital statistics, &c.

We learn that Philadelphia is cleaned at a much less cost per mile than New York or Boston, but we have not comparative statistics of the cleanliness of the streets of the three cities. Among the reports of the physicians of the port, the lazaretto and the municipal hospital, we find several treating on relapsing and yellow fever, which diseases became epidemic in certain confined localities in the lower portions of the city, the yellow fever having been imported by the brig "Home" from Jamaica. A separately paged essay, covering 86 pages, by Dr. R. La Roche, is appended, and treats on the origin and mode of progression of yellow fever in Philadelphia. With a population according to the last census, of 674,022, the mortality in the city during 1870

was 15,317, or one in 44 of the population, the births numbered 17,194, and 6,421 marriages were registered. The statistical tables exhibit a great amount of labor, and impart much valuable information to the statistician.

Die gerichtlich-chemische Ermittelung von Giften in Nahrungsmitteln, Luftgemischen, Speiseresten, Körpertheilen, etc. Von Dr. Georg Dragendorff, ord. Professor der Pharmacie an der Universität Dorpat. Mit Holzschnitten. St. Petersburg, 1868. 8vo. 426 pages.

The forensic chemical determination of poisons in vitals, gases, food, animal bodies, etc. With wood cuts.

We owe an explanation to the author for not having noticed his valuable work before, and regret exceedingly that it has been very much delayed on its way to our hands, having been received but a few weeks ago. Numerous investigations on the detection of poisons, and especially of the alkaloids, were made with commendable perseverance by the author and, under his guidance, by his pupils. In the work before us the author considers the more important methods recommended for the detection of the different poisons, the points wherein they are superior or deficient as compared with other processes, and particularly their reliability. He relates the symptoms produced by the poison, and endeavors to guide the chemical expert, based upon the results obtained, in meeting the legal questions in connection with accidental or intentional poisoning. The scope of the work is best shown by quoting the headings under which some of the poisons are treated, for which purpose we select an inorganic and an organic poison. Arsenic.—General remarks; resorption; symptoms of arsenical toxication; mummification of corpses; emesis in poisoning by arsenic; in which parts of the body must arsenic be searched for? which mistakes are possible? accidental occurrence of arsenic in exhumed corpses; disappearance of arsenic from the corpses of poisoned subjects; did the arsenic found cause death? remaining in rooms with arsenical colors; treatment of organic mixtures for arsenic; precipitation by sulphuretted hydrogen; reduction of arsenic acid; treatment of the precipitate; methods to detect arsenic; recognition of arsenical mirrors; properties of arsenic compounds; quantitative determination of arsenic.

The headings under Cantharides are: General remarks; action; resorption; not poisonous for all animals; separation of cantharidin from mixtures; properties; corpus delicti; quantitative determination; poisoning with the tincture and with powdered cantharides; mistakes possible; other epispastic substances; volatile principle of cantharides.

The language is clear and concise, adapted for those who are not mere tyros in chemistry, the illustrations are well executed, and most of the few typographical errors are readily detected. We desire to correct a misstatement which, though entirely unimportant for the work under consideration, we have repeatedly met with in European works. In a foot note on page 275 the author says that "the principle originally called hydrastin has been recognized as identical with berberina. The name hydrastin was subsequently used for a second alkaloid occurring in hydrastis canadensis." The facts are just the reverse: Hydrastia was discovered and recognized as an alkaloid in 1850 by A. B. Durand.

Subsequently the eclectics applied the same name to the precipitate occurring in the infusion and tincture of hydrastis by muriatic acid, and obstinately persist in this error to the present day, although Dr. F. Mabla, in 1862, proved this precipitate to be muriate of berberina, and notwithstanding the impropriety of the course pursued has been repeatedly pointed out to them.

Uebersicht der Cinchonen, von H.A. Weddell, Dr. med. Deutsch bearbeitet von Dr. F. A. Flückiger, Prof. an der Universität Bern. Schaffhausen und Berlin, 1871. 8vo. 43 pages.

Review of the Cinchonas, by H. A. Weddell, M.D.

An elaboration in German of Weddell's *Notes sur les Quinquinas*, by Flückiger.

Twenty-two years ago Weddell opened the way for a truly scientific study of cinchona barks. His labors were well appreciated in Europe, and many others, prominent among whom was Howard, followed in his path, whose works are comparatively little known on this side of the Atlantic. The work in question is not merely a translation into German, but it is a valuable addition to the vast literature on the cinchonas, enriched by Flückiger's extensive knowledge of the subject and his critical sifting of facts.

Proceedings, Constitution and By-Laws of the Vermont Pharmaceutical Association, incorporated at the October session of the Vermont Legislature, 1870. Rutland: Tuttle & Co., printers. 1871.

With a commendable spirit, our pharmaceutical friends in Vermont formed a State association, and became a body politic by act of their Legislature. Constitution and by-laws are modelled after those of the American Pharmaceutical Association, and the code of ethics after that adopted by the Philadelphia College of Pharmacy. The discussions, to judge from the minutes, were valuable and interesting, and with such sentiments as were expressed at the several meetings, we bespeak for the new State association a hearty welcome in the councils of the National association. The following are the officers: Dr. C. L. Case, Brandon, President; Wm. H. Northrup, Castleton, and Julius S. Hickock, Vergennes, Vice-Presidents; Albert W. Higgins, Rutland, Secretary; Collins Blakeley, Montpelier, Treasurer.

Jahresbericht über die Fortschritte der Pharmacognosie, Pharmacie und Toxicologie. Von Med.-Rath Dr. Wiggers, Prof. in Göttingen, und Dr. A. Husemann, Prof. in Chur. Neue Folge. 4 Jahrgang, 1869. Göttingen, 1870. 8vo. Pp. 568.

Annual Report on the Progress of Pharmacognosy, Pharmacy and Toxicology.

The 4th volume of the new series—the first 25 volumes having appeared under the title of "Cannstatt's Jahresbericht"—sustains the high reputation acquired for this annual by the previous volumes. The matter is arranged in a systematic order, under the three headings mentioned in the title, chemistry being included under Pharmacy, which is divided into eight parts, of which "Pharmacy of the inorganic bodies," "Pharmacy of organic bodies," and "Pharmacy of mixed medicinal substance," are the most voluminous. The different essays on the same subjects are not merely enumerated and extracted one after the

other, but the authors review the entire literature on each subject during the year, contrasting critically the statements of the different investigators where they are at variance. This feature makes the work particularly valuable to the reader. In no instance is the reference omitted to the journal or work, in which the statement originally appeared. The careful sifting of all facts from the literature of most of the civilized countries, and the copious references to investigations conducted in previous years, secure to each and every volume of the "Jahresbericht" an intrinsic and lasting value, which is approached, but not reached yet, by the annual reports on the Progress of Pharmacy published by the American Pharmaceutical Association. The American literature, pharmaceutical and medical, has been well studied and selected, and the efforts of American pharmacists to elevate their profession, by excluding incompetent persons, are approvingly criticized. Our opinion concurs with that of the authors, that the elevation of pharmacy to the proper position will render unimportant all legislation threatening fine and imprisonment for adulteration, though we do not share his sanguineness in regard to the salutary effects of the inspection of pharmaceutical establishments by State boards.

Ueber den Zustand der Chemie in Frankreich. Von Dr. Hermann Kolbe, Prof. der Chemie an der Universität Leipzig. Leipzig, 1870. J. A. Barth. 8vo. 14 pages.

On the State of Chemistry in France.

Two years ago, A. Wurtz wrote a history of the chemical theories since the time of Lavoisier, which he commenced with the statement that "Chemistry is a French science, founded by the immortal Lavoisier," and in which he ignores the labors and even the names of many of the most celebrated chemists of this century, among them Davy, Faraday, Liebig, Woehler, &c. Prof. Kolbe endeavors to show that this "history" was evidently written for the self-glorification of French chemists, and that even the French Academy of Sciences has degenerated since the time when savants like Berthollet, Gay-Lussac, Thénard, Dulong, Proust, Chevreul and others were members.

American Journal of Microscopy, devoted to the elucidation of scientific and popular microscopy. E. M. Hale, M.D., editor. Chicago: G. Mead & Co. publishers and proprietors. 8vo. 32 pages. Monthly. $2 a year.

With the growing interest into microscopical investigations, the publication of a journal entirely devoted to this subject is certainly very opportune. There are many microscopists scattered throughout the country who, if becoming regular contributors, could supply much interesting matter to its pages. Whether the combination of *scientific* and *popular* microscopy—in the sense in which these terms are usually employed together—will not detract from the value of the journal, remains to be seen. We trust that the editor may succeed in making it the exponent of microscopical researches on this continent; but there is hardly any evidence of such an aim discernible in the first number.

The Kansas City Medical Journal. Published bi-monthly. A. P. Lankford, M.D., editor, Kansas City, Mo. $2 per annum. 8vo.

A new medical journal of the "far West," filled with practical and instructive original and selected matter, and in a handsome typographical suit.

Report of a Special Committee of the Medical Society of the District of Columbia upon the Claims of the Homœopaths and other Irregular Practitioners for Professional Recognition in the Medical Service of the U. S. Government, and the Charges brought by the Homœopaths against the U. S. Commissioner of Army and Navy Pensions. Published by resolution of the Medical Society. Washington, 1871.

The reception of this pamphlet is acknowledged.

The Medical Herald and Journal of Pharmacy. J. W. Brock, M. D., and Robert J. Brown, pharmacist, editors, Leavenworth, Kansas. 8vo. $3 per annum.

Our friends in the West are stirring. We rejoice that in a locality where but a few short years ago a "buffalo hunt and a free fight with the Indians" were counted among the attractions, pharmacy has established itself on so firm a basis as to warrant the publication of a journal one-half of which is to be devoted to its interests, while the other half remains in the hands of her older sister, "Medicine." The first number under the new arrangement is to be published simultaneously with this issue; and, while we expect to see it succeed under the energetic management of our friend Brown, we trust that it will become the means of professional intercourse with a section of our vast country from which heretofore we have but rarely heard.

Chemistry: General, Medical and Pharmaceutical, including the Chemistry of the U. S. Pharmacopœia. A manual on the general Principles of the Science, and their application to Medicine and Pharmacy. By John Attfield, Ph. D., F. C. S.; Professor of Practical Chemistry to the Pharmaceutical Society of Great Britain. From the second and enlarged English edition. Revised by the author. Philadelphia: Henry C. Lea. 1871.

The first English edition of this work was noticed in this journal in 1868, on pages 93 and 190. The present volume was received too late for careful examination; we shall therefore defer a more extended report to the next number, and now merely state that we consider it a very practical guide for the laboratory as well as the shop, and that pharmacists and physicians will find it very instructive in the details of chemical investigations, analytical and practical, which they may undertake.

OBITUARY.

Dr. J. B. Henkel, Professor of Pharmacy at the University of Tübingen, died March 2d, 1871, in the 42d year of his age. Having been educated a pharmacist, he subsequently devoted his energies to scientific pursuits in the interest of the profession of his choice. He published in German several works on pharmaceutical subjects, among which we mention: The Genuineness and Quality of Crude Vegetable Medicinal Products, Handbook of Pharmacognosy, Dictionary of Drugs, and, in conjunction with Dr. G. Jäger and Dr. W. Städel, The Elements of Pharmacy, of which work the deceased wrote the botanical and pharmacognostical part. The Philadelphia College of Pharmacy loses in him one of its corresponding members.

Jean Joseph Edouard Hauchamps, Professor of Pharmacology at the University of Brussels, died in March last. He was one of the founders, and for a number of years one of the officers, of the Société de Pharmacie of that city.